

## TECHNICAL NOTES

### A. Conceptual Framework

#### ***Compendium of Philippine Environment Statistics (CPES)***

The compendium covers a core set of environment statistics which is grouped into six components namely: 1) environmental conditions and quality; 2) environmental resources and their use; 3) residuals; 4) extreme events and disasters; 5) human settlements and environmental health; and 6) environment protection, management and engagement.

As described in Framework for the Development of Environment Statistics (FDES), Basic Set of Environment Statistics has been set up following a progression of three tiers, based on the level of relevance, availability and methodological development of the statistics. Tier 1 is the core set of environment statistics that serve as an agreed and limited set of environment statistics that are of high priority and relevance to most countries. Tier 2 includes environment statistics which are of priority and relevance to most countries but require greater investment of time, resources or methodological development. It is recommended that countries consider producing them in the medium-term. Tier 3 includes environment statistics which are either of lower priority or require significant methodological development. It is recommended that countries consider producing them in the long-term.

#### **Component 6: Environmental Protection, Management and Engagement**

Environmental protection, management, and engagement is a compilation of information on a country's activities involving the protection and management of its environment. This component consists of information on expenditures, regulations, and other activities such as international agreements focusing on the protection of the environment and management of resources.

## *Four sub-components of Component 6*

### **Subcomponent 6.1: Environmental Protection and Resource Management Expenditure**

This subcomponent monitors the level of environmental protection and resource management expenditure. Based on FDES 2013, environmental protection activities are activities whose primary purpose is the prevention, reduction and elimination of pollution and other forms of degradation of the environment (e.g. protection of ambient air and climate, wastewater management, waste management, etc.). Meanwhile, resource management activities are activities whose primary purpose is preserving and maintaining the stock of natural resources and hence safeguarding against depletion (e.g. reducing the withdrawals of natural resources, restoring natural resource stocks, etc.)

There are two topics under this subcomponent. These are 1) government environmental protection and resource management expenditure; and 2) corporate, non-profit institution and household environmental protection and resource management expenditure. Both topics' primary aim is to protect the environment and manage its resources.

### **Subcomponent 6.2: Environmental Governance and Regulation**

This subcomponent provides a holistic view of national responses, requires institutional strength as well as regulatory capabilities. Policy makers use this as their basis to determine the current and desired levels of engagement and commitment from both government and private sector.

There are three topics in this subcomponent. The first topic is institutional strength, which covers engagement of the government and citizen in environmental and sustainable development public policy reflected in the extent to which institutions that manage and regulate the environment exist and function properly both at the national and subnational levels. Second is the environmental regulation and instruments, which are the policy responses to regulate and establish acceptable limits for protecting the environment and human health. Lastly, the participation in Multilateral Environmental Agreements (MEAs) and environmental conventions are the

information on a country's participation in MEAs and other global environmental conventions.

### **Subcomponent 6.3: Extreme Event Preparedness and Disaster**

This subcomponent captures the existence and strength of the extreme event preparedness and disaster management agency's facilities and infrastructure to minimize loss of life and economic losses. This refers to the expenditure of public or private in helping before, during or after a disaster.

There are two topics under this subcomponent. These are 1) preparedness for natural extreme events and disasters; and 2) preparedness for technological disasters. Measures on preparedness for natural extreme events and disasters are different from technological disasters. This is because natural extreme events and disasters usually occur on a larger scale and, typically, the government is primarily involved in preparedness and clean-up, while technological disasters usually arise at an industrial location or on a mode of transportation where the corporate sector has a legal obligation in contributing to preparedness and clean-up.

### **Subcomponent 6.4: Environmental Information and Awareness**

This subcomponent covers statistics related to the activities and processes that contribute to increase social awareness of environmental issues. Policy makers use this to learn which information and education programs are in place. Moreover, as information and awareness increase in a society, individuals and group expect more pro-environmental actions and choices.

There are four topics in this subcomponent. The first is the environmental information, which describes the state of the environment and its changes. Second is the environmental education. This refers to the process of sharing and constructing environmental information and knowledge, as well as information on how humans interact with the environment; hence, it raises social awareness. Third, environmental perception and awareness refers to individuals and group's notions of, attitudes towards and evaluations of the

environment. Lastly, the topic on environmental engagement transforms perceptions and attitudes into pro-environmental actions.

## B. Definition of Terms

Component 6 of the Compendium of Philippine Environment Statistics glossary of terms:

Terms	Definition
Air Pollutant	Any matter found in the atmosphere other than oxygen, nitrogen, water vapor, carbon dioxide, and the inert gases in their natural or normal concentrations that is detrimental to health or the environment, which includes but not limited, to smoke, dust, soot, cinders, fly ash, solid particles of any kind, gases, fumes, chemical mists, steam, and radioactive substances ( <i>RA No. 8749 "An Act Providing for a Comprehensive Air Pollution Control Policy and for other Purposes"</i> ).
Ambient Air Quality	The general amount of pollution present in a broad area. It also refers to the atmosphere's average purity as distinguished from discharge measurements taken at the source of pollution ( <i>RA No. 8749 "An Act Providing for a Comprehensive Air Pollution Control Policy and for other Purposes"</i> ).
Ambient Air Quality Guideline Value	The concentration of air over specified periods classified as short- and long-term, which is intended to serve as a goal or objective for the protection of health and/or public welfare. The value shall be used for air quality management purposes, such as determining time trends, evaluating stages of deterioration, or enhancing air quality, and in general, used as basis for taking positive action in

	preventing, controlling, or abating air pollution ( <i>RA No. 8749 “An Act Providing for a Comprehensive Air Pollution Control Policy and for other Purposes”</i> ).
Ambient Air Quality Standard	The concentration of an air pollutant which shall not be exceeded in the breathing zone at any time in order to protect public health and public welfare. It is enforceable and must be complied with by the owner or person-in-charge of an industrial operation, process, or trade ( <i>Implementing Rules and Regulations of RA No. 8749 “An Act Providing for a Comprehensive Air Pollution Control Policy and for other Purposes”</i> ).
Criteria Pollutants	Pollutants for which National Ambient Air Quality Standards exist. The criteria pollutants include ozone, carbon monoxide, nitrogen dioxide, sulfur dioxide, lead, sulfates, hydrogen sulfide, and particulate matter with a diameter of 10 microns or less ( <i>Implementing Rules and Regulation of RA No. 8749 “An Act Providing for a Comprehensive Air Pollution Control Policy and for other Purposes”</i> ).
Effluents	Discharges from known source which are passed into a body of water or land, or wastewater flowing out of a manufacturing plant, industrial plant including domestic, commercial, and recreational facilities ( <i>RA No. 9275 “An Act Providing for a Comprehensive Water Quality Management and for Other Purposes”</i> ).
Emission	Any air contaminant, pollutant, gas stream, or unwanted sound from a known source which is passed into the atmosphere ( <i>RA No. 8749 “An Act Providing for a Comprehensive Air</i>

	<i>Pollution Control Policy and for other Purposes”).</i>
Environment	The totality of all the external conditions affecting the life, development, and survival of an organism ( <i>UN Environment Glossary Updated Web Version 2001</i> ).
Environmental Awareness	Involves the gradual understanding of environmental issues, and the recognition of the connections among human actions, development, sustainability and human responsibility in these processes. Environmental awareness involves the realization that humans and ecosystems co-exist in a shared environment, which is ultimately the biosphere. Awareness fosters pro-environmental attitudes and predispositions for action and changed behavior ( <i>FDES, 2013 Glossary</i> ).
Environmental Education	Refers to the process of sharing and constructing environmental information and knowledge, as well as information on how humans interact with the environment. Environmental education is carried out through a variety of programmes, including formal and informal education and training, directed towards different audiences. It may be curriculum- and classroom-based or experiential, and may be provided on-site or in community settings by government agencies or NGOs. Environmental education is integral to education for sustainable development ( <i>FDES, 2013 Glossary</i> ).
Environmental Engagement	Involves the transformation of perceptions and attitudes into concrete, pro-environmental actions. Individual and social participation and engagement in environmental processes intended to

	improve and protect the local and global environment are a concrete manifestation of understanding and motivation of, and commitment to protecting and improving the environment, expressed through behavior ( <i>FDES, 2013 Glossary</i> ).
Environmental Information	Includes quantitative and qualitative facts describing the state of the environment and its changes as described in the different components of the FDES. Quantitative environmental information is generally produced in the form of data, statistics and indicators, and is generally disseminated through databases, spreadsheets, compendiums and yearbooks. Qualitative environmental information consists of descriptions (e.g., textual or pictorial) of the environment or its constituent parts that cannot be adequately represented by accurate quantitative descriptors. Geographically referenced environmental information provides facts on the environment and its components using digital maps, satellite imagery and other sources linked to a location or map feature ( <i>FDES, 2013 Glossary</i> ).
Environmental Perception	Refers to individuals and group's notions of, attitudes towards and evaluations of the environment, both as a whole or with respect to specific environmental issues. Individuals and communities make decisions and judgments, and take actions based on subjective perceptions of environmental information and experiences. Values and attitudes thus "filter" information and transform it into perception in a culturally specific manner ( <i>FDES, 2013 Glossary</i> ).

Environmental Protection Activities	Are activities whose primary purpose is the prevention, reduction and elimination of pollution and other forms of degradation of the environment. These activities include the protection of ambient air and climate, wastewater management, waste management, protection and remediation of soil, groundwater and surface water, noise and vibration abatement, protection of biodiversity and landscapes, protection against radiation, research and development for environmental protection and other environmental protection activities ( <i>FDES, 2013 Glossary</i> ).
Environmental Regulation and Instruments	Refer to policy responses to regulate and establish acceptable limits for protecting the environment and human health. It entails both direct regulatory and economic instruments. Direct regulatory instruments include environmental and related laws, standards, limits and their enforcement capacities. These can be described using statistics on regulated pollutants, licensing systems, applications for licenses, quotas for biological resource extraction, and budget and the number of staff dedicated to enforcement of environmental regulations. Economic instruments may comprise the existence and number of green/environmental taxes, environmental subsidies, eco-labelling and certification and emission permits ( <i>FDES, 2013 Glossary</i> ).
Government Environmental Protection and Resource Management Expenditure	Includes government expenditure whose primary aim is to protect the environment and manage its resources ( <i>FDES, 2013 Glossary</i> ).
Multilateral Environment Agreement	A generic term for treaties, conventions, protocols, and other binding instruments related to the environment. It covers a



	wider geographic scope extending beyond instruments that are agreed upon between two states ( <i>United Nations</i> ).
Pollutant	Any substance, whether solid, liquid, gaseous, or radioactive, which directly or indirectly alters the quality of any segment of the receiving water body so as to affect or tend to affect adversely any beneficial use thereof, is hazardous or potentially hazardous to health, imparts objectionable odor, temperature change, or physical, chemical, or biological change to any segment of the water body, or is in excess of the allowable limits or concentrations or quality standards specified, or in contravention of the condition, limitation, or restriction prescribed in Republic Act No. 9275 ( <i>RA No. 9275 "An Act Providing for a Comprehensive Water Quality Management and for Other Purposes"</i> ).
Resource Management Activities	Are activities whose primary purpose is preserving and maintaining the stock of natural resources hence, safeguarding against depletion. These activities include, but are not limited to, reducing the withdrawals of natural resources (including the recovery, reuse, recycling and substitution of natural resources), restoring natural resource stocks (increases or recharges of natural resource stocks), the general management of natural resources (including monitoring, control, surveillance, and data collection), and the production of goods and services used to manage or conserve natural resources. They cover the management of mineral and energy resources, timber resources, aquatic resources, other biological

	resources, water resources, research and development activities for resource management, and other resource management activities ( <i>FDES, 2013 Glossary</i> ).
Waste Management	Includes collection, transport, treatment, and disposal of waste, control, monitoring, and regulation of the production, collection, transport, treatment, and disposal of waste, and prevention of waste production through in-process modifications, reuse, and recycling ( <i>UN Environment Glossary Updated Web Version 2001</i> ).
Wastewater	Refers to waste in liquid state that contains pollutants. It also refers to use water that is typically discharged into the sewage system and contains matter and bacteria in solution or suspension ( <i>RA No.9275 “An Act Providing for a Comprehensive Water Quality Management and for Other Purposes”; UN Glossary of Environment Statistics</i> ).
Water Body	Refers to both natural and man-made bodies of fresh, brackish, and saline waters, and include but is not limited to aquifers, groundwater, springs, creeks, streams, rivers, ponds, lagoons, water reservoirs, lakes, bays, estuarine, and coastal and marine waters. These do not refer to those constructed, developed, and used purposely as water treatment facilities and or water storage for recycling and reuse that are integral to process industry or manufacturing ( <i>RA No. 9275 “An Act Providing for a Comprehensive Water Quality Management and for Other Purposes”</i> ).
Water Quality	The set of characteristics of water, which defines its use in terms of physical,

	chemical, biological, bacteriological, or radiological characteristics by which the acceptability of water is evaluated ( <i>RA No.9275 “An Act Providing for a Comprehensive Water Quality Management and for Other Purposes”</i> )
Water Quality Guideline	The level for a water constituent or numerical values of physical, chemical, biological, and bacteriological or radiological parameters, which are used to classify water resources and their use, which does not result in significant health risk and which are not intended for direct enforcement but only for water quality management purposes, such as determining time trends, evaluating stages of deterioration, or enhancing the water quality, and as basis for taking positive action in preventing, controlling, or abating water pollution ( <i>RA No. 9275 “An Act Providing for a Comprehensive Water Quality Management and For Other Purposes”</i> ).

## C. Data Sources

The Component 6 of the Compendium of Philippine Environment Statistics (CPES) data on expenditures, regulations and international agreements focusing on the protection of the environment and management of resources were obtained from the following:

Data	Data Sources
Budget of Expenditures and Sources of Financing (BESF)	Department of Budget and Management (DBM) website
List of regulated pollutants and description	Philippine Clean Air Act of 1999  Department Administrative Orders (DAOs) of the Department of Environment and Natural Resources (DENR)
List of Multilateral Environmental Agreements (MEAs)	Department of Environment and Natural Resources (DENR) <i>Data were gathered on the page of DENR – International Agreements on Environment and Natural Resources. *</i>  Biodiversity Management Bureau (BMB, DENR) <i>Data from the bureau were also cross validated on the page.</i>

*\*The page was updated on December 2019*

## D. Compilation Methodology

1. Consolidate the government environmental protection expenditure which are broken down by activity: waste management, wastewater management, pollution abatement, protection of biodiversity and landscape, research and development, and others, and by department and state university or college that was sourced from the Budget of Expenditures and Sources of Financing (BESF) of the Department of Budget and Management (DBM) for years following the updating of the compendium.

2. Compute the total government environmental protection expenditure which was broken down by activity that was sourced from the Budget of Expenditures and Sources of Financing (BESF) of the Department of Budget and Management (DBM) for years following the updating of the compendium.
3. One table is compiled for this statistic, showing the annual government environmental protection expenditures from 2014 to 2019.
4. Consolidate the climate change expenditure disaggregated by agency and state university or college and by National Climate Change Action Plan (NCCAP) priority that was sourced from the Budget of Expenditures and Sources of Financing (BESF) of the Department of Budget and Management (DBM) for years following the updating of the compendium.
5. Compute the total climate change expenditure disaggregated by agency and state university or college and by National Climate Change Action Plan (NCCAP) priority that was sourced from the Budget of Expenditures and Sources of Financing (BESF) of the Department of Budget and Management (DBM) for years following the updating of the compendium.
6. Two tables are compiled for this statistic, showing the climate change expenditures by agency and state university or college and by National Climate Change Action Plan (NCCAP) priority from 2015 to 2019.
7. List various limits for air and water pollutants that were lifted from Republic Act No. 8749 or the Philippine Clean Air Act of 1999, and the different Department Administrative Orders (DAOs), of the Department of Environment and Natural Resources (DENR) in which limits for different types of vehicles and other air pollutant sources are described.

8. Thirty-seven tables are compiled in this statistic, showing the lists of regulated pollutants that were gathered from existing laws and administrative orders of the Department of Environment and Natural Resources.
9. List Multilateral Environmental Agreements (MEAs) and other international conventions that the Philippines is engaged with that were sourced from the Department of Environment and Natural Resources and its bureau, the Biodiversity Management Bureau
10. One table is compiled in this statistic listing the multilateral environmental agreements (MEAs) and other international engagements of the Philippines.

## **E. Statistical Tables**

- A. Government environmental protection expenditure table describes the expenditure by activity: waste management, wastewater management, pollution abatement, protection of biodiversity and landscape, research and development, and others, and by department and state university or college
- B. Climate change expenditure tables shows the expenditure by agency and state university or college and by National Climate Change Action Plan (NCCAP) priority
- C. List of regulated pollutants and description table focuses on the emission limit of pollutants to air and water.
- D. List of Multilateral Environmental Agreements (MEAs) table describes engagement of the Philippines in MEAs and other international convention.